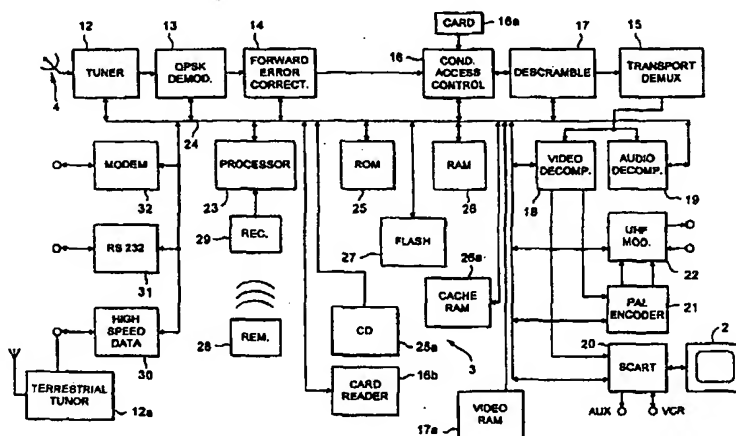




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04N 5/445		A3	(11) International Publication Number: WO 99/66721
			(43) International Publication Date: 23 December 1999 (23.12.99)
(21) International Application Number: PCT/GB99/01873		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 14 June 1999 (14.06.99)			
(30) Priority Data: 9812797.0 12 June 1998 (12.06.98) GB			
(71) Applicant (for all designated States except US): BRITISH SKY BROADCASTING LIMITED [GB/GB]; Grant Way, Isleworth, Middlesex TW7 5QD (GB).			
(72) Inventors; and (75) Inventors/Applicants (for US only): HOLLIDAY, David [GB/GB]; British Sky Broadcasting Limited, Grant Way, Isleworth, Middlesex TW7 5QD (GB). CROSSLEY, Robin [GB/GB]; British Sky Broadcasting Limited, Grant Way, Isleworth, Middlesex TW7 5QD (GB). JAMES, Nicholas [GB/GB]; British Sky Broadcasting Limited, Grant Way, Isleworth, Middlesex TW7 5QD (GB).		Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	
(74) Agents: WHITTEN, George, Alan et al.; R.G.C. Jenkins & Co., 26 Caxton Street, London SW1H 0RJ (GB).		(88) Date of publication of the international search report: 10 February 2000 (10.02.00)	

(54) Title: TELEVISION SIGNALS RECEIVER



(57) Abstract

A receiver for receiving television signals is arranged to receive signals in a plurality of channels. Each signal defines a television programme and at least a signal in one of the channels comprises compressed data defining broadcast events in the channels from time to time. The receiver is arranged to produce output signals defining an image of events in the programme schedule for displaying on a television screen. The receiver comprises means for receiving data defining a dictionary representing text portions, means for decoding the programme scheduling data to identify text portions in the dictionary, and means for constructing the image of events from the identified text portions. A signal in each channel comprises a bouquet identity and a sub-bouquet identity for the channel. The receiver comprises means for storing a reference bouquet identity and one or more reference sub-bouquet identities, means for comparing the bouquet identity and sub-bouquet identity for a channel in a received signal with the reference bouquet and sub-bouquet identities and means for outputting the received television signal for display of the programme or other services defined thereby depending on the comparison.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakhstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/01873

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 H04N5/445

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 823 815 A (MATSUSHITA ELECTRIC IND CO LTD) 11 February 1998 (1998-02-11) column 10, line 55 -column 17, line 13 ---	1-8
A	US 5 585 866 A (DARATA PAUL ET AL) 17 December 1996 (1996-12-17) column 7, line 48 -column 36, line 48 ---	1-8
A	WO 97 23997 A (BRITISH SKY BROADCASTING LTD ;TOWNSEND CHRISTOPHER PETER (GB); HOL) 3 July 1997 (1997-07-03) cited in the application page 8 -page 45 --- -/-	1-8

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

3 December 1999

Date of mailing of the international search report

14. 12. 99

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Materne, A

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 99/01873

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 96 37996 A (WEBBER ALUN DAVID ;CROSSLEY ROBIN (GB); HOLLIDAY DAVID (GB); BRITI) 28 November 1996 (1996-11-28) cited in the application page 10, line 9 -page 48	1-8
X	US 5 619 274 A (ALEGIANI GIAMBATTISTA A ET AL) 8 April 1997 (1997-04-08) column 9, line 21 -column 49, line 49	9-13
A,P	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 05, 31 May 1999 (1999-05-31) & JP 11 055592 A (HITACHI LTD;HITACHI VIDEO IND INF SYST INC), 26 February 1999 (1999-02-26) abstract	9-13
A	EP 0 822 718 A (DISCOVERY COMMUNICAT INC) 4 February 1998 (1998-02-04) page 3, line 47 -page 28, line 17	9-13
A	US 5 371 550 A (KUROSAWA KAZUYUKI ET AL) 6 December 1994 (1994-12-06) claims 17-26	9-13
X	US 5 635 989 A (ROTHMULLER MICHAEL) 3 June 1997 (1997-06-03)	14
Y	column 3, line 5 -column 8, line 40	15
X	WO 96 07270 A (KWOH DANIEL S ;LEUNG ELSIE Y (US); MANKOVITZ ROY J (US); YUEN HENR) 7 March 1996 (1996-03-07) page 4, line 16 -page 27	14,19-21
Y	WO 94 13107 A (DISCOVERY COMMUNICAT INC) 9 June 1994 (1994-06-09) page 10 -page 87	15
X	US 5 684 525 A (KLOSTERMAN BRIAN LEE) 4 November 1997 (1997-11-04)	16
Y	column 2, line 58 -column 9, line 25	17,18
Y	WO 98 06219 A (STARSIGHT TELECAST INC) 12 February 1998 (1998-02-12) page 11, line 29 -page 21, line 13	17,18
A	EP 0 746 153 A (IBM) 4 December 1996 (1996-12-04) page 3, line 25 -page 27, line 7	16-18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 99/01873

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 99/01873

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-8

text compression using dictionaries representing text portions

2. Claims: 9-13

regionalizing broadcasted channels by using channel bouquets according to a given region of interest

3. Claims: 14, 15

sorting schedule data according to a given parameter

4. Claims: 16-18

caching EPG schedule data for merging data from various environments

5. Claim : 19

time-shifted services for broadcasting a same movie from different channels at different start times

6. Claims: 20, 21

EPG scheduling pay per view programmes

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 99/01873

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0823815	A	11-02-1998	CN 1175733 A	11-03-1998
			JP 10155140 A	09-06-1998
US 5585866	A	17-12-1996	US 5781246 A	14-07-1998
			AU 705839 B	03-06-1999
			AU 6092996 A	30-12-1996
			CA 2223018 A	19-12-1996
			EP 0830787 A	25-03-1998
			PL 323830 A	27-04-1998
			WO 9641477 A	19-12-1996
			US 5589892 A	31-12-1996
			US 5822123 A	13-10-1998
WO 9723997	A	03-07-1997	AU 7631696 A	17-07-1997
			CA 2241368 A	03-07-1997
			EP 0868816 A	07-10-1998
			NO 982805 A	20-08-1998
WO 9637996	A	28-11-1996	AU 5774296 A	11-12-1996
			CA 2221754 A	28-11-1996
			EP 0827668 A	11-03-1998
			JP 11505978 T	25-05-1999
			NO 975290 A	21-01-1998
US 5619274	A	08-04-1997	US 5790198 A	04-08-1998
			US 5479268 A	26-12-1995
			AU 694521 B	23-07-1998
			AU 2635595 A	29-11-1995
			CA 2189454 A	16-11-1995
			CN 1152987 A	25-06-1997
			EP 0761061 A	12-03-1997
			JP 10503628 T	31-03-1998
			WO 9531069 A	16-11-1995
			US 5812205 A	22-09-1998
			US 5949954 A	07-09-1999
			US 5479266 A	26-12-1995
			US 5809204 A	15-09-1998
			CA 2091160 A	11-03-1992
			EP 0548286 A	30-06-1993
			JP 10208328 A	07-08-1998
			JP 6504165 T	12-05-1994
			US 5353121 A	04-10-1994
			US 5727060 A	10-03-1998
			WO 9204801 A	19-03-1995
			US 5532754 A	02-07-1996
			US 5808608 A	15-09-1998
JP 11055592	A	26-02-1999	NONE	
EP 0822718	A	04-02-1998	EP 0920208 A	02-06-1999
			AT 177277 T	15-03-1999
			AT 176840 T	15-03-1999
			AT 183352 T	15-08-1999
			AT 176841 T	15-03-1999
			AU 4440797 A	29-01-1998
			AU 4532597 A	05-02-1998
			AU 693775 B	09-07-1998
			AU 5732994 A	04-07-1994

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/GB 99/01873

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0822718 A		AU 692427 B	11-06-1998
		AU 5733094 A	04-07-1994
		AU 691479 B	21-05-1998
		AU 5733194 A	04-07-1994
		AU 692428 B	11-06-1998
		AU 5733294 A	04-07-1994
		AU 5736394 A	04-07-1994
		AU 5845894 A	22-06-1994
		AU 5869894 A	04-07-1994
		AU 6066798 A	04-06-1998
		AU 6066898 A	04-06-1998
		BR 9307619 A	15-06-1999
		BR 9307621 A	15-06-1999
		BR 9307622 A	15-06-1999
		BR 9307624 A	15-06-1999
		CA 2151456 A	23-06-1994
		CA 2151457 A	23-06-1994
		CA 2151458 A	23-06-1994
		CA 2151459 A	23-06-1994
		CA 2151460 A	23-06-1994
		CA 2151461 A	09-06-1994
		CA 2151462 A	23-06-1994
		CN 1093211 A	05-10-1994
		CN 1090451 A	03-08-1994
		CN 1090452 A	03-08-1994
		CN 1096151 A	07-12-1994
		CN 1090453 A	03-08-1994
		CN 1090454 A	03-08-1994
		DE 69323560 D	25-03-1999
		DE 69323560 T	23-09-1999
		DE 69323562 D	25-03-1999
		DE 69323562 T	23-09-1999
		DE 69323767 D	08-04-1999
		DE 69323767 T	21-10-1999
		DE 69326020 D	16-09-1999
		EP 0673578 A	27-09-1995
		EP 0673579 A	27-09-1995
		EP 0673580 A	27-09-1995
		EP 0673581 A	27-09-1995
		EP 0673582 A	27-09-1995
US 5371550 A	06-12-1994	JP 6077779 A	18-03-1994
US 5635989 A	03-06-1997	AU 2122097 A	02-09-1997
		WO 9730546 A	21-08-1997
WO 9607270 A	07-03-1996	AU 3502795 A	22-03-1996
		CA 2198740 A	07-03-1996
		CN 1176726 A	18-03-1998
		EP 0806111 A	12-11-1997
		JP 11501467 T	02-02-1999
WO 9413107 A	09-06-1994	AT 177277 T	15-03-1999
		AT 176840 T	15-03-1999
		AT 183352 T	15-08-1999
		AT 176841 T	15-03-1999
		AU 4440797 A	29-01-1998
		AU 4532597 A	05-02-1998

INTERNATIONAL SEARCH REPORT

information on patent family members

Inter: nal Application No

PCT/GB 99/01873

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9413107 A		AU 693775 B	09-07-1998
		AU 5732994 A	04-07-1994
		AU 692427 B	11-06-1998
		AU 5733094 A	04-07-1994
		AU 691479 B	21-05-1998
		AU 5733194 A	04-07-1994
		AU 692428 B	11-06-1998
		AU 5733294 A	04-07-1994
		AU 5736394 A	04-07-1994
		AU 5845894 A	22-06-1994
		AU 5869894 A	04-07-1994
		AU 6066798 A	04-06-1998
		AU 6066898 A	04-06-1998
		BR 9307619 A	15-06-1999
		BR 9307621 A	15-06-1999
		BR 9307622 A	15-06-1999
		BR 9307624 A	15-06-1999
		CA 2151456 A	23-06-1994
		CA 2151457 A	23-06-1994
		CA 2151458 A	23-06-1994
		CA 2151459 A	23-06-1994
		CA 2151460 A	23-06-1994
		CA 2151461 A	09-06-1994
		CA 2151462 A	23-06-1994
		CN 1093211 A	05-10-1994
		CN 1090451 A	03-08-1994
		CN 1090452 A	03-08-1994
		CN 1096151 A	07-12-1994
		CN 1090453 A	03-08-1994
		CN 1090454 A	03-08-1994
		DE 69323560 D	25-03-1999
		DE 69323560 T	23-09-1999
		DE 69323562 D	25-03-1999
		DE 69323562 T	23-09-1999
		DE 69323767 D	08-04-1999
		DE 69323767 T	21-10-1999
		DE 69326020 D	16-09-1999
		EP 0673578 A	27-09-1995
		EP 0673579 A	27-09-1995
		EP 0673580 A	27-09-1995
		EP 0673581 A	27-09-1995
		EP 0673582 A	27-09-1995
		EP 0673583 A	27-09-1995
		EP 0674824 A	04-10-1995
US 5684525 A	04-11-1997	US 5550576 A	27-08-1996
		US 5828945 A	27-10-1998
		US 5923362 A	13-07-1999
		AU 708574 B	05-08-1999
		AU 5443996 A	07-11-1996
		CA 2218543 A	24-10-1996
		CN 1185257 A	17-06-1998
		EP 0821856 A	04-02-1998
		JP 11504171 T	06-04-1999
		WO 9633572 A	24-10-1996
WO 9806219 A	12-02-1998	AU 3908297 A	25-02-1998
		EP 0919097 A	02-06-1999

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/GB 99/01873

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0746153 A	04-12-1996	US 5602597 A	11-02-1997
		CA 2177918 A	01-12-1996
		JP 8328800 A	13-12-1996
<hr/>			